

REMARKS

The Office Action dated January 6, 2005, has been received and carefully noted. The above changes to the claims and the following remarks are submitted as a full and complete response thereto. Claims 1 and 8 have been amended to more particularly point out and claim the instant invention. No new matter has been entered. Support for the newly amended claims may be found in the specification at paragraphs [0044] through [0047]. Claims 1-15 are again respectfully submitted for consideration.

Applicants wish to thank the Examiner for extending the courtesy of a personal interview to Applicant's Representative on March 10, 2005. The discussions with the Examiner and Primary Examiner Kindred were fruitful and assisted in the preparation of this Response to the Office Action. The Interview is summarized below in the discussions of the rejections.

In the Office Action, claims 1, 2, 4-9 and 11-15 were again rejected under 35 USC § 102(b) as being anticipated by *Spinney* (U.S. Patent 5,414,704). The Office Action took the position that *Spinney* taught every element of the rejected claims. Claims 3 and 10 were rejected under 35 USC § 103(a) as being unpatentable over *Spinney* in view of newly cited *Moreton* (U.S. Patent 5,506,624). The Office Action took the position that *Spinney* disclosed all of the elements of the claimed invention, with the exception of "XOR indexing said index portion to said bucket portion." *Moreton* was cited as curing the deficiencies in *Spinney*. The above rejections are respectfully traversed according to the remarks that follow.

The present invention is directed, according to claim 1, to a method of performing a table look-up in a network device. The method includes receiving a data packet through an input port of the network device, parsing the data packet into an index portion and a corresponding bucket portion, indexing, directly, the index portion to the corresponding bucket portion and accessing address table information stored in an address look-up table using the bucket portion.

The present invention is directed, according to claim 8, to an address table look-up indexing device. The device includes a receiver portion of a port of a network device that receives an incoming data packet, a data parser that parses the data packet into an index portion and a corresponding bucket portion, an indexer that directly indexes the index portion to the bucket portion and an address lookup device that accesses an address look-up table using the corresponding bucket portion.

The present invention is directed, according to claim 15, to a network switch. The switch includes multiple ports used for receiving and exporting data, each of the multiple ports being connected to one another through a communications medium, and multiple Address Resolution Logic (ARL) devices, each of the multiple ARL devices being connected to one of the multiple ports, each of the multiple ports having a corresponding ARL device. Each of the multiple ARL devices includes a parser that parses data into an index portion and a corresponding bucket portion, an indexer that directly indexes the index portion to a corresponding bucket portion and a look-up device that accesses table entries in a look-up table using the bucket portion.

As discussed in the present specification, the present invention enables an enhanced method and apparatus for table look up in address resolution. The process, illustrated for one embodiment in Fig. 2A, shows a 48 bit key parsed into an index portion (I) and a bucket portion (N). As illustrated in Fig. 2B, the index and bucket portions are used in concert to perform the table look up. It is respectfully submitted that the prior art of *Spinney* fails to disclose or suggest the elements of any of the presently pending claims. Therefore, the prior art fails to provide the critical and unobvious advantages discussed above.

The Office alleges in the rejection that *Spinney* teaches all of the elements of the claims. *Spinney* is directed to a process of performing source and destination address lookups, where that lookup uses a combination of programmable hash algorithms, binary search algorithms and small content-addressable memory (CAM). While it is true that *Spinney* and the instant invention are concerned with address resolution, the methodologies employed are quite different.

The rejection makes reference to the portions of *Spinney* that describe the receipt and parsing of packets and the accessing an address lookup table, but also references Fig. 6 and alleges that the figure provides for bucket and index portions of a packet. However, Fig. 6 does not illustrate packet portions, but rather provides a structure of the hash table. The buckets of the hash table are used to store multiple indices and have nothing to do with the parsing of a bucket portion of a packet, as described and claimed

in the instant invention. For a clearer understanding of the process of address lookups in *Spinney*, one should refer to Fig. 8 thereof.

Fig. 8 of *Spinney* illustrates that an input address is sent to the CAM and to a hash function to produce a hash address (88) and a remainder field (97). The hash address is used with the hash table (89) to produce a translation table pointer to ultimately produce an address. The remainder field is used to determine the correct branching in a logic tree of the entries. However, this process fails to teach or suggest all of the elements of claims 1, 8 or 15.

During the Interview, the Examiner expanded on the Examiner's interpretation of *Spinney* and indicated that the flowchart in Fig. 8 showed a relationship that is formed between the hash address and the remainder field. The Examiner indicated that this relationship was equivalent to indexing. However, even if the Examiner interpretation were accepted, Applicants respectfully assert that this argument amounts to the "indexing" elements of the claims being obvious in view of *Spinney* and not anticipated by *Spinney*.

Claim 1 recites "indexing, directly, said index portion to said corresponding bucket portion," with claims 8 and 15 reciting an indexer that indexes the index portion to the bucket portion. Paragraph [0043] of the instant specification recites "FIG. 2B is an illustration of an index segment I(1) linearly indexed to a bucket segment N(1), an index segment I(2) linearly indexed to a bucket segment N(2), an index segment I(3) linearly indexed to a bucket segment N(3) . . . Each index segment I selects a bucket segment N

and the combination of index segment I and bucket segment N selects an entry in the table.” The process of indexing of parsed portions is also further discussed in later sections of the specification.

In *Spinney*, even if, as alleged, the hash address and remainder field are equivalent to the claimed index and bucket portions, those portions would not need to be directly indexed. In *Spinney*, the remainder field is used only to select a correct branching. The hash address and the remainder field are not directly indexed together and used to select a table entry. As such, Applicants respectfully assert that the rejection of claims 1, 8 and 15 is improper because *Spinney* fails to teach all of the elements of those claims. Similarly, the rejection of the dependent claims, namely claims 2-7 and 9-14, is also improper for at least the dependence of those claims on the independent claims. Reconsideration and withdrawal of the rejection are respectfully requested.

Similarly, Applicants also respectfully assert that the instant claims are also not obvious in view of *Spinney*. Given the process illustrated in Fig. 8 of *Spinney* and described therein, there would be no need to index portions of the parsed packet. The indexing of the index portion and the bucket portion is an integral part of the methodology of the instant invention, but one of ordinary skill in the art would not be motivated to include such an indexing function to the method described in *Spinney*. Additionally, even if the relationship asserted between the hash address and remainder field was equivalent to indexing, it does not amount to direct indexing and there would be

no motivation to provide such direct indexing. As such, Applicants respectfully assert that claims 1-15 are also not rendered obvious in view of *Spinney*.

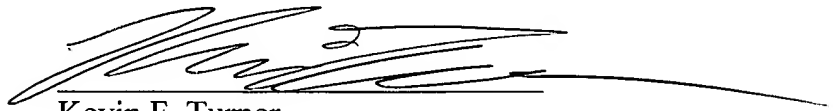
In view of the above, Applicants respectfully submit that claims 1-15 each recite subject matter which is neither disclosed nor suggested in a *Spinney*. Reconsideration and withdrawal of the rejection applying *Spinney* are respectfully requested.

In addition, the rejection of claims 3 and 10 also applied *Moreton*. *Moreton* is directed to a computer-implemented method of transmitting images from a transmitter to a receiver using a rotating pixel sample of blocks. While the rejection alleges that *Moreton* "teaches the method of using the XOR in a lookup hash table," *Moreton* fails to teach or suggest such disclosure. The cited section of *Moreton* details that bits of a counter value are input into a series of XOR functions. There is no disclosure of a lookup table, a hash table, nor a table of any kind. Thus, the rejection's motivation, i.e. reduce the amount of time and process to complete a table, to combine *Spinney* and *Moreton* cannot be upheld, since *Moreton* does not provide the disclosure that it has been alleged. Reconsideration and withdrawal of the rejection of claims 3 and 10 are respectfully requested.

If for any reason the Examiner determines that the application is not now in condition for allowance, it is respectfully requested that the Examiner contact, by telephone, the undersigned attorney at the indicated telephone number to arrange for an interview to expedite the disposition of this application.

In the event this paper is not being timely filed, the applicant respectfully petitions for an appropriate extension of time. Any fees for such an extension together with any additional fees may be charged to Counsel's Deposit Account 50-2222.

Respectfully submitted,

A handwritten signature in black ink, appearing to read 'Kevin F. Turner', with a long horizontal flourish extending to the right.

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